





Risk

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Immanuel Barshi
NASA Ames Research Center
Immanuel.Barshi@nasa.gov

What is risk assessment?

It's what we do all the time!

- Every decision is a choice.
- Every choice is a form of risk assessment.
- Every risk assessment is designed to inform a choice.

Risk Assessment

What are the chances of something bad happening?

What are the chances of something bad happening?

- Chances
- Something
- Bad



- Risk is relative
 - Risk assessment is used to compare options
 - Either to choose the least/acceptable risk option (what's the risk of doing nothing?)
 - Or to choose the intervention that would lead to the greatest risk reduction (for the cost)

Which is riskier?



What are the chances of something bad happening?

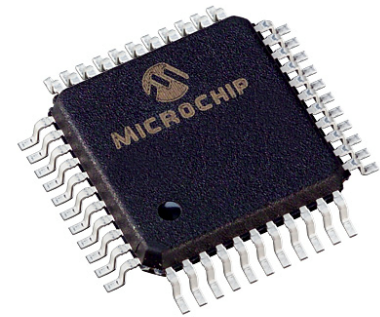
- Chances – likelihood/probability
- Something - outcome
- Bad – consequences/severity/threat value

Risk

- Combination of probability (likelihood) and consequences (threat value)
 - Risk = $f(p,c)$

PRA

- Traditional “economic” definition
 - $R_x = p_x \times c_x$
- Example
 - Supplier A
 - $P(\text{chip failure}) = .0001$
 - $\text{Cost}(\text{replace chip}) = \0.30
 - Supplier B
 - $P(\text{chip failure}) = .00001$
 - $\text{Cost}(\text{replace chip}) = \0.60
 - $\text{Risk}(\text{Supplier A}) = 0.00003$
 - $\text{Risk}(\text{Supplier B}) = 0.000006$



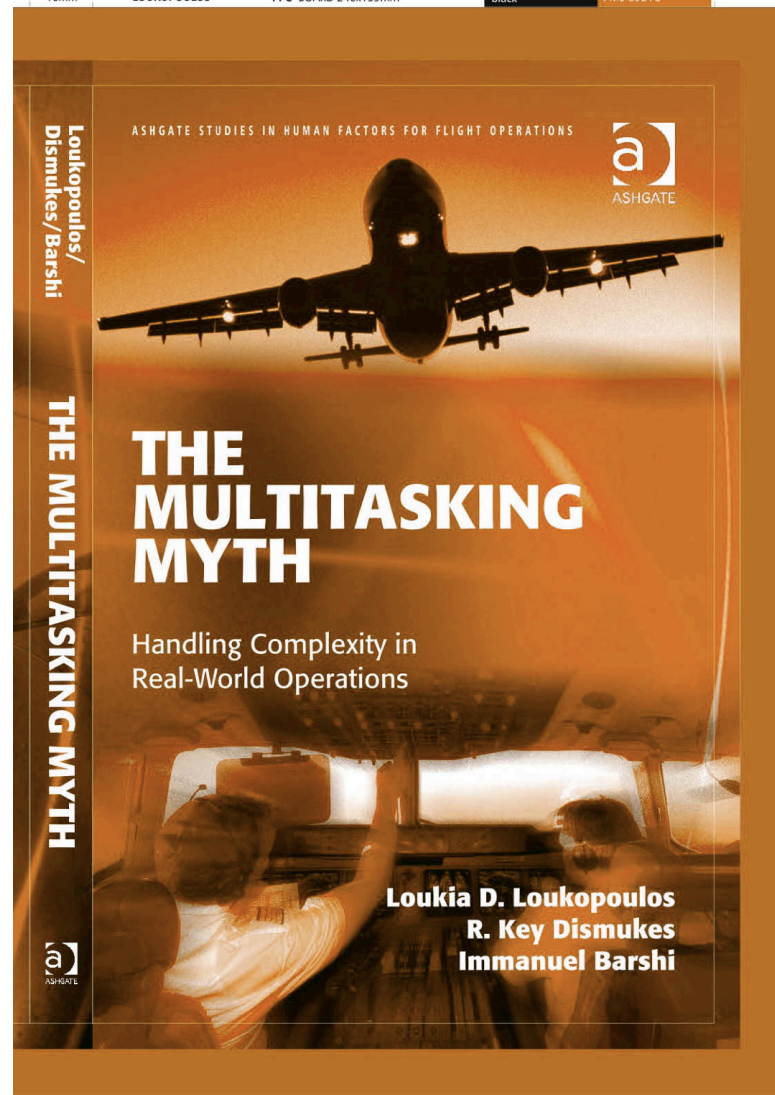
Problem with PRA

- Doesn't fit all conditions
 - Example: High probability-low threat & low probability-high consequence
- Example
 - Likelihood scale: 0 (guaranteed not to happen) – 1 (guaranteed to happen)
 - Consequence scale: 0 (nothing) - 100 (catastrophe)
 - Threat A: $p(a)=.001$, $c(a)=2$
 - Threat B: $p(b)=.000001$, $c(b)=90$
 - $R(a)=.002$; $R(b)=.00009$
 - $R(a) \gg R(b)$

PWA

- Low p
- High c
- Little d

The Risk of Multitasking

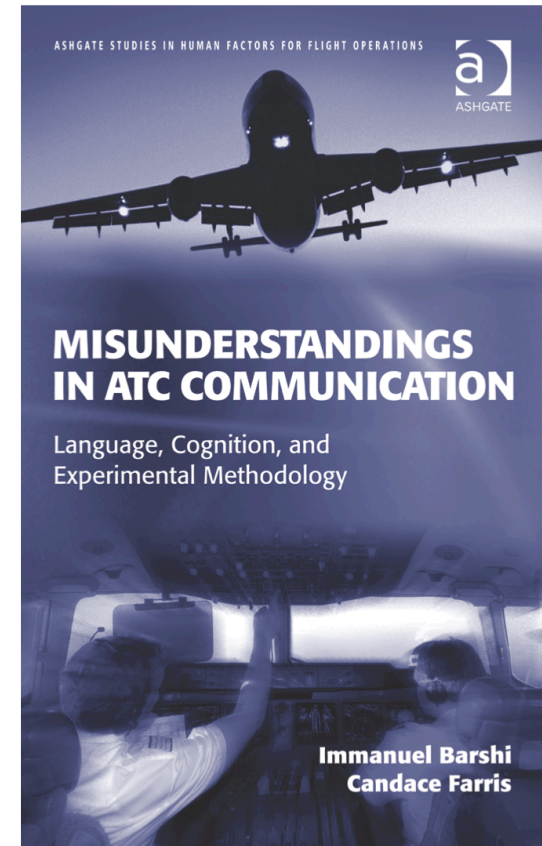




And the Risk of Speaking UP?

- Assumed High p
- Assumed High c
- Little to no d

Additional Information:



Or contact me at: Immanuel.Barshi@nasa.gov